

Fig. 1

PRIOR ART

Header A
Data A
Header B
Data 1B
Data 2B
Data 3B
Data 4B
Header C
Data 1C
⋮

Fig. 2a
PRIOR ART

Bitstream header Config. Logic Reg. address	Config. Logic Register data contents
0000	Cyclic Redundancy Check (CRC)
0001	Frame Address
0010	Frame Data Input
0011	Frame Data Output
0100	Command
0110	Control
0111	Status
1000	Daisy Chain Output
1001	Configuration Option
1010	Reserved
1011	Frame Length
1100	Reserved
1101	Reserved
1110	Reserved
1111	Reserved

Fig. 2d
PRIOR ART

32-bit Command Header Format 1

Format Type	Op code	Config. Logic Register address	Word count
001	00 01 10		

Fig. 2b PRIOR ART

11 bits, counts 2048 words

32-bit Command Header Format 1

Format Type	Op code	Config. Logic Register Address	Word Count
001	00 01 10		00000000000

32-bit Command Header Format 2

Format Type	Op code	Word Count
010	00 01 10	

27 bits, counts 2.68 million words or 10 megabytes

Fig. 2c PRIOR ART

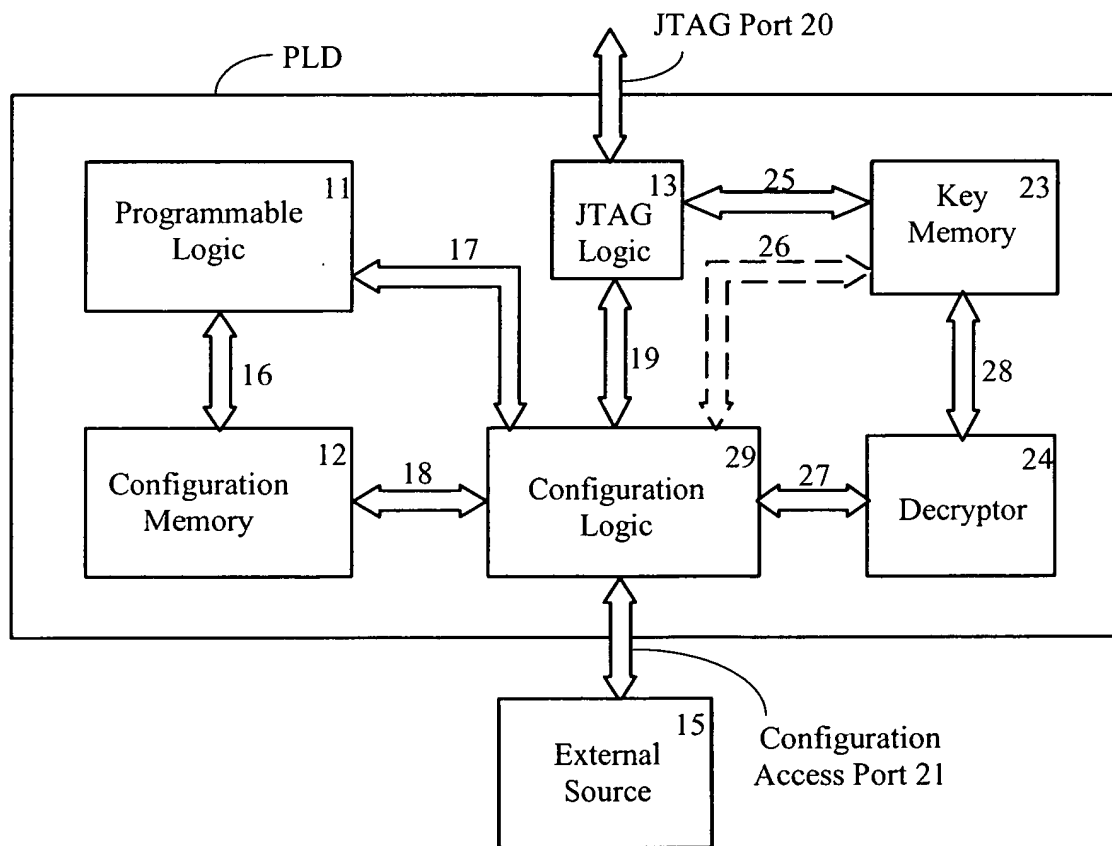


Fig. 3

Header A
Data A
Header B
Data B
Header C
Data C
Header D
Data 1D
Data 2D
Data 3D
⋮
⋮
⋮

Fig. 4a

Bitstream header Config. Logic Reg. address	Config. Logic Register data contents
0000	Cyclic Redundancy Check (CRC)
0001	Frame Address
0010	Frame Data Input
0011	Frame Data Output
0100	Command
0110	Control
0111	Status
1000	Daisy Chain Output
1001	Configuration Option
1010	Reserved
1011	Frame Length
1100	Cipher block chaining(CBC) starter
1101	Initial key address
1110	Reserved
1111	Reserved

Fig. 4d

32-bit Command Header Format 1

Format Type	Op code	Config. Logic Register address	Word count
001	00 01 10 11		
11 bits, counts 2048 words			

Fig. 4b

32-bit Command Header Format 1

Format Type	Op code	Config. Logic Register Address	Word Count
001	00 01 10 11		000000000000

32-bit Command Header Format 2

Format Type	Op code	Word Count
010	00 01 10 11	
27 bits, counts 2.68 million words or 10 megabytes		

Fig. 4c

```

Dummy word 111111111111111111111111111111111111111111111111111
Sync word 101010101001100101010101010101100110
Type 1 write 1 words to CMD 001100000000000001000000000000001
RCRC command 00000000000000000000000000000000111
Type 1 write 1 words to FLR 001100000000000010110000000000001
data word 0 0000000000000000000000000000000011001
Type 1 write 1 words to COR 001100000000000010010000000000001
data word 0 000000000000000010000111111111000001
Type 1 write 1 words to ID 001100000000000011100000000000001
data word 0 00000001000000001000000010010011
Type 1 write 1 words to MASK 001100000000000011000000000000001
data word 0 000000000000000000000000000000000000000
Type 1 write 1 words to CMD 001100000000000010000000000000001
SWITCH command 000000000000000000000000000000001001
Type 1 write 1 words to FAR 001100000000000001000000000000001
data word 0 000000000000000000000000000000000000000
Type 1 write 1 words to CMD 001100000000000010000000000000001
WCFG command 000000000000000000000000000000000000001
Type 1 write 0 words to FDRI 001100000000000010000000000000000000000
Type 2 write 10530 words to FDRI 010100000000000000010100100100010
data word 0 000000000000000000000000000000000000000
data word 1 000000000000000000000000000000000000000
data word 2 000010000000000000000000000000000000000
data word 3 00001000000000001111111111111111000
.
.
.
data word 10526 000000000000000000000000000000000000000
data word 10527 00000000001000000000000000000000001
data word 10528 000000000000000000000000000000000000000
data word 10529 000000000000000000000000000000000000000
Auto CRC word 00000000000000000000110111000010001
Type 1 write 1 words to CMD 001100000000000010000000000000001
LFRM command 00000000000000000000000000000000000011
Type 1 NO OP 001000000000000000000000000000000000000
.
.
.
Type 1 NO OP 001000000000000000000000000000000000000
Type 1 write 1 words to COR 001100000000000010010000000000001
data word 0 00000001000001000000111111000001
Type 1 write 1 words to CMD 001100000000000010000000000000001
START command 000000000000000000000000000000000000101
Type 1 write 1 words to CTL 001100000000000010100000000000001
data word 0 000000000000000000000000000000000000000
Type 1 write 1 words to CMD 001100000000000010000000000000001
GRESTORE command 00000000000000000000000000000000001010
Type 1 write 1 words to CRC 001100000000000000000000000000001
data word 0 0000000000000000000010100100110010
Type 1 write 1 words to CMD 001100000000000010000000000000001
DESYNCH command 0000000000000000000000000000000000001101
Type 1 NO OP 001000000000000000000000000000000000000

```

Fig. 5a

 ENCRYPTED VERSION

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      Dummy word 11111111111111111111111111111111
      Sync word 101010100110010101010101010110
Type 1 write 1 words to CMD 0011000000000000100000000000001
      RCRC command 0000000000000000000000000000111
Type 1 write 1 words to FLR 001100000000000010110000000000001
      data word 0 000000000000000000000000000011001
Type 1 write 1 words to COR 001100000000000010010000000000001
      data word 0 00000000000001000011111111000001
Type 1 write 1 words to ID 001100000000000011100000000000001
      data word 0 000000010000000001000000010010011
Type 1 write 1 words to MASK 001100000000000011000000000000001
      data word 0 0000000000000000000000000000000000
Type 1 write 1 words to CMD 001100000000000001000000000000001
      SWITCH command 00000000000000000000000000001001
Type 1 write 1 words to FAR 001100000000000000010000000000001
      data word 0 0000000000000000000000000000000000
Type 1 write 1 words to CMD 001100000000000001000000000000001
      WCFG command 0000000000000000000000000000000001
Type 1 write 1 word to KEY ADDR 001100000000000011000000000000001
      data word 0 0000000000000000000000000000000000
Type 1 write 2 words to CBC 0011000000000000110100000000000010
      data word 0 10010000101010111100110111101111
      data word 1 00010010001101000101011001111000
Type 1 decrypt 0 words to FDRI 001110000000000001000000000000000
Type 2 dec 10530 words to FDRI 010110000000000000010100100100010
      data word 0 000101011101101100110011001001000
      data word 1 11100000111000110111111101100111
      data word 2 10101010011111011110001100110011
      data word 3 01100001101011100001011010110100
      .
      .
      data word 10526 01011001101111101100010101001010
      data word 10527 00101001010111111101011110110000
      data word 10528 11000000001010100110011000101010
      data word 10529 01111111110010000001100011100010
      Auto CRC word 000000000000000001011111011001010
Type 1 write 1 words to CMD 001100000000000001000000000000001
      LFRM command 0000000000000000000000000000000011
      Type 1 NO OP 0010000000000000000000000000000000
      .
      .
      Type 1 NO OP 0010000000000000000000000000000000
Type 1 write 1 words to COR 001100000000000010010000000000001
      data word 0 00000000000001000011111111000001
Type 1 write 1 words to CMD 001100000000000001000000000000001
      START command 0000000000000000000000000000000101
Type 1 write 1 words to CTL 001100000000000001010000000000001
      data word 0 0000000000000000000000000000000000
Type 1 write 1 words to CMD 001100000000000001000000000000001
      GRESTORE command 000000000000000000000000000001010
Type 1 write 1 words to CRC 001100000000000000000000000000001
      data word 0 00000000000000000001010111001111
Type 1 write 1 words to CMD 001100000000000001000000000000001
      DESYNCH command 000000000000000000000000000001101
      Type 1 NO OP 0010000000000000000000000000000000

```

Fig. 5b

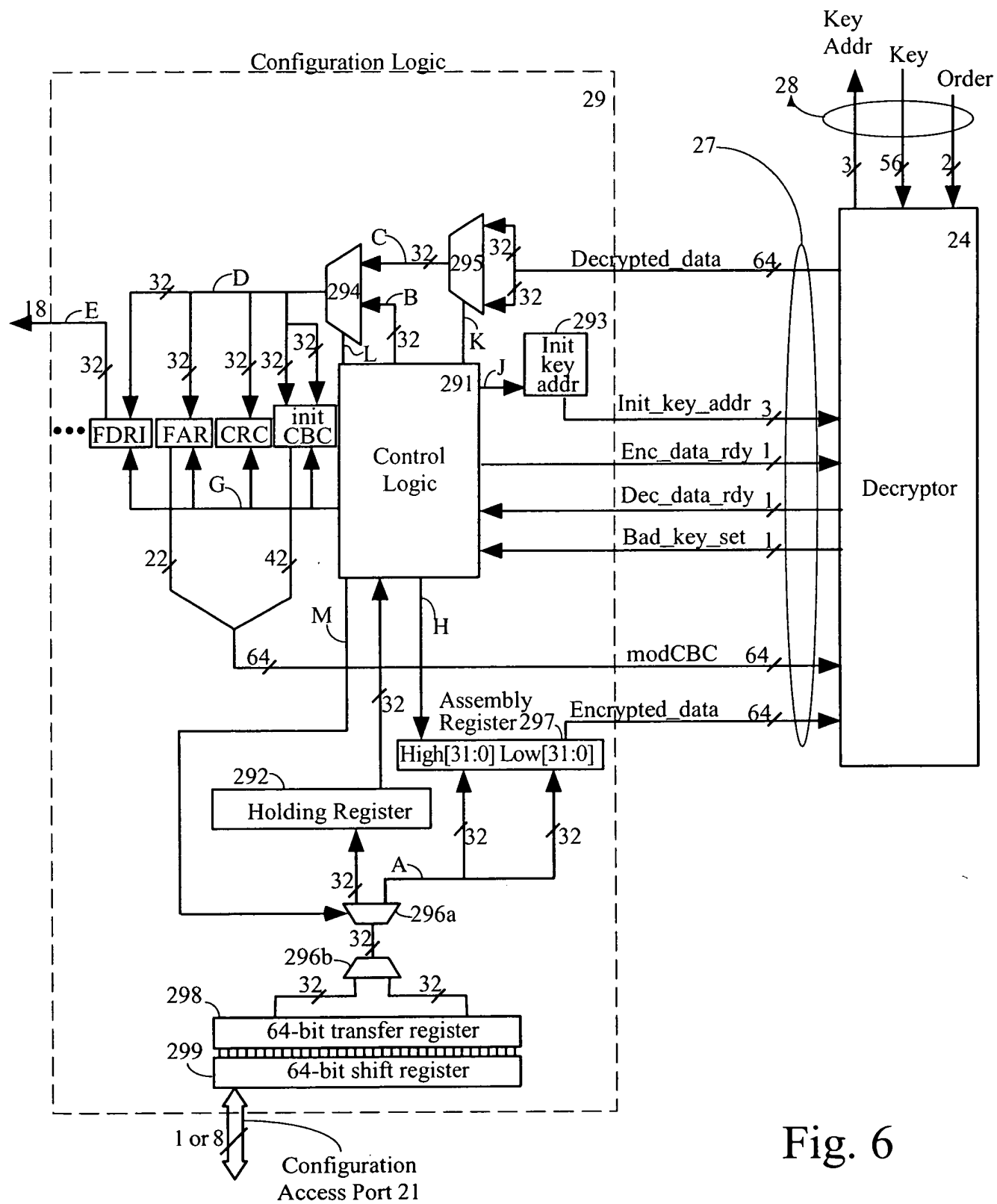


Fig. 6

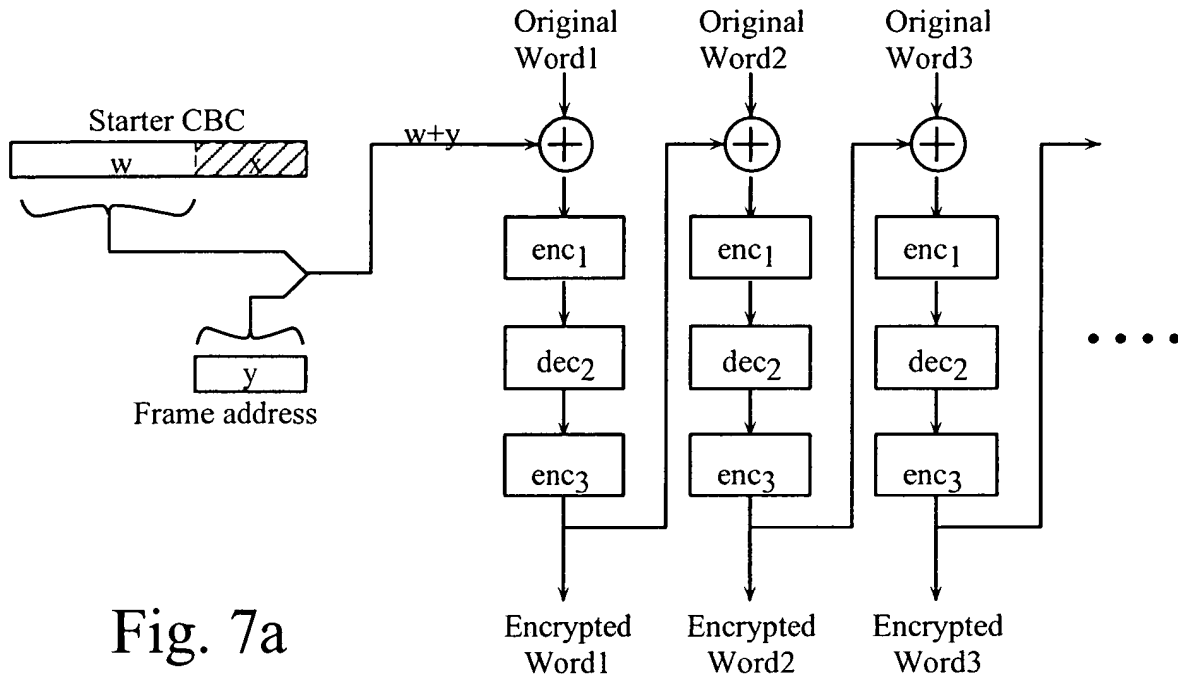


Fig. 7a

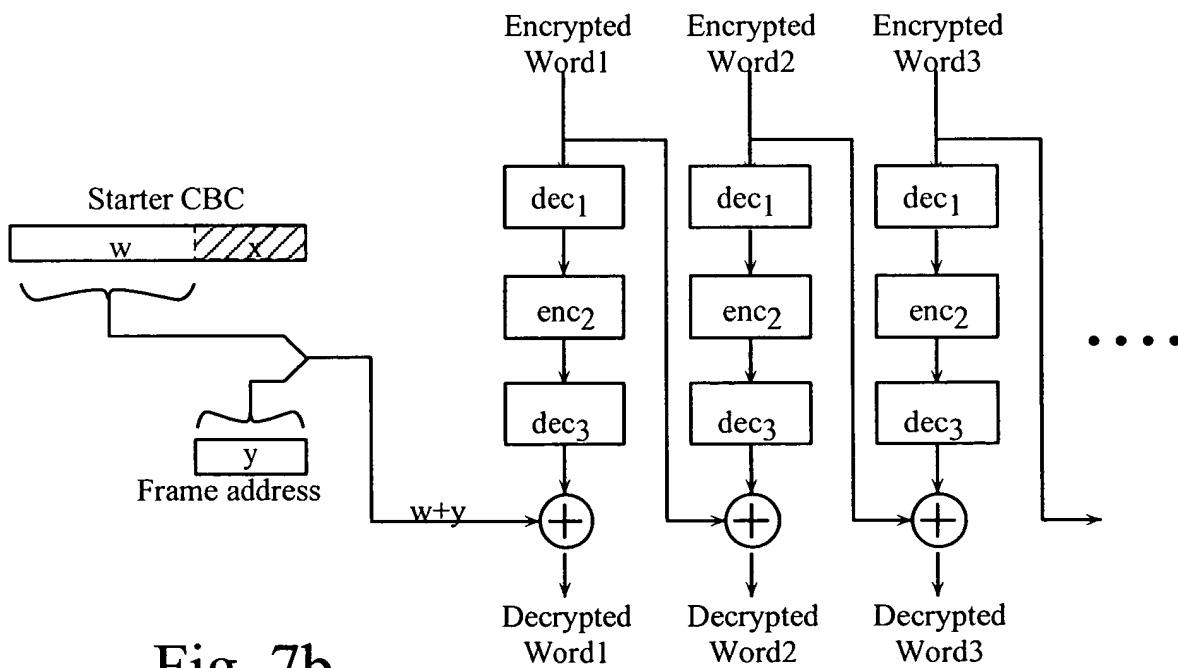


Fig. 7b

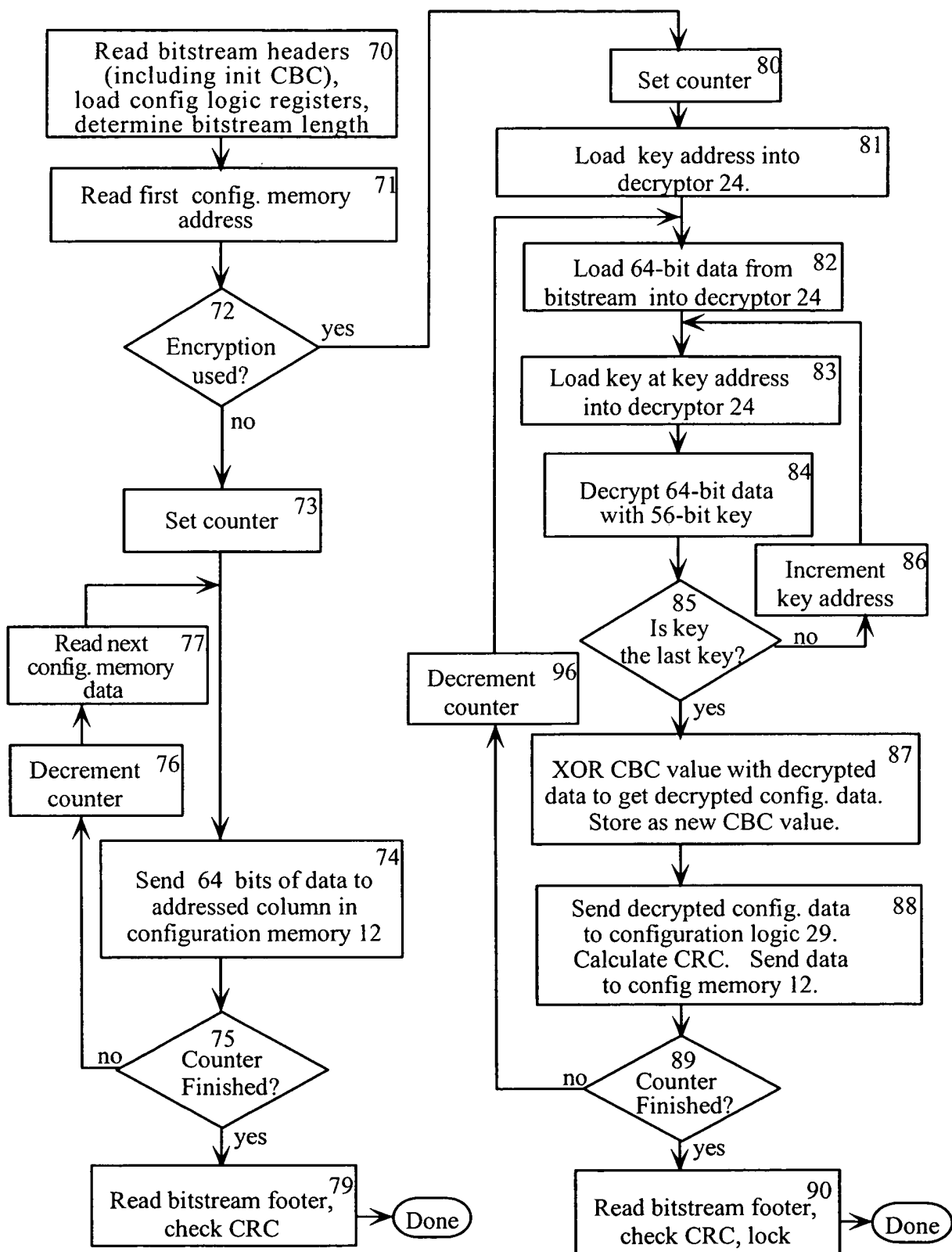


Fig. 8

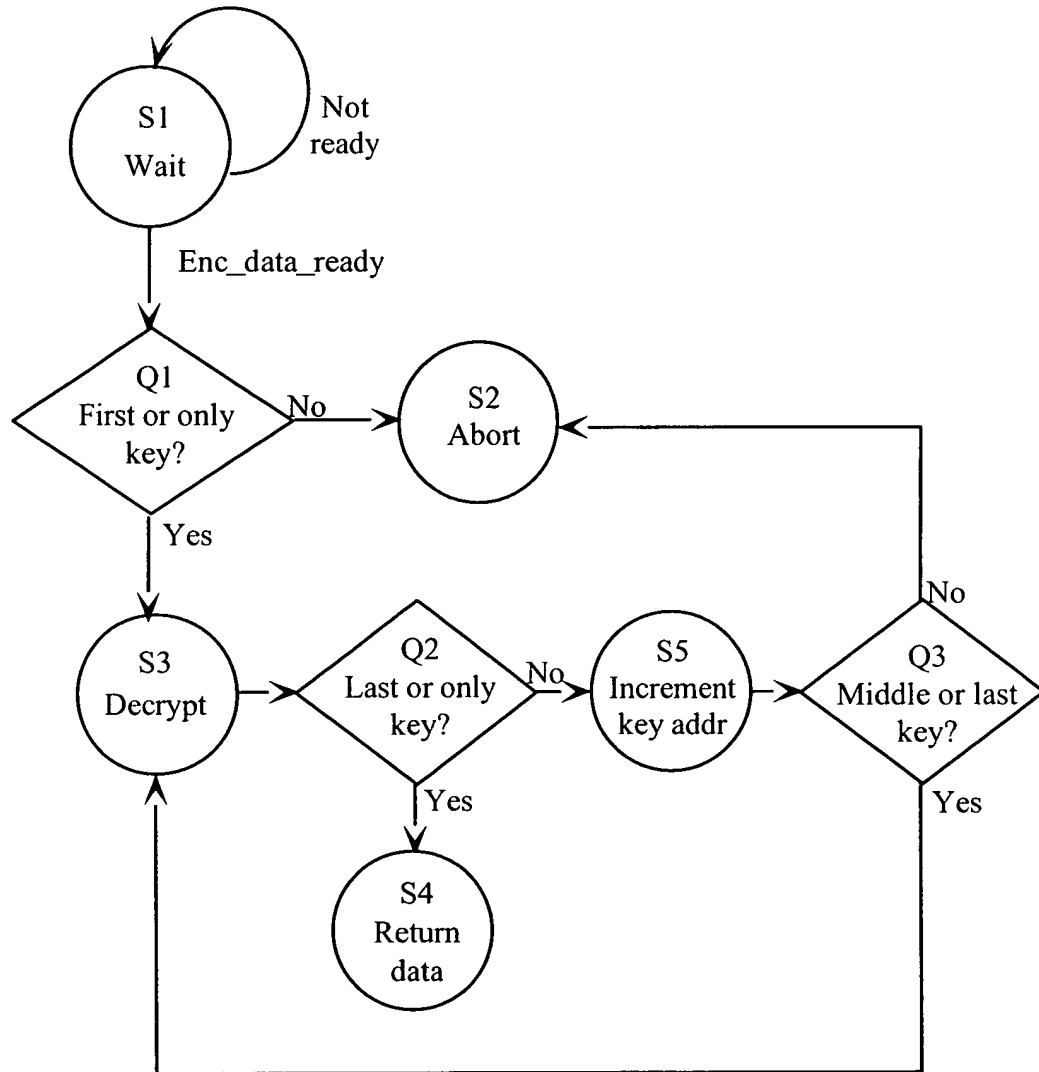


Fig. 9

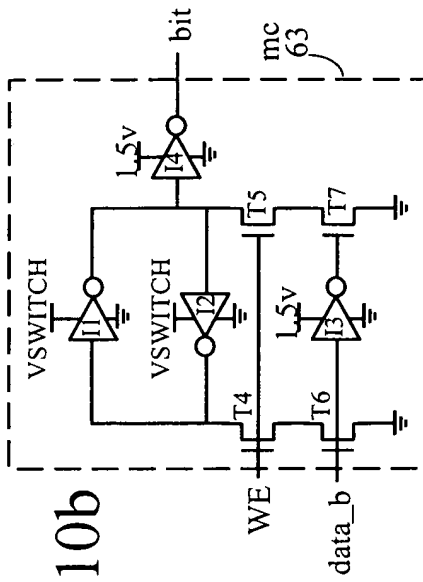


Fig. 10b

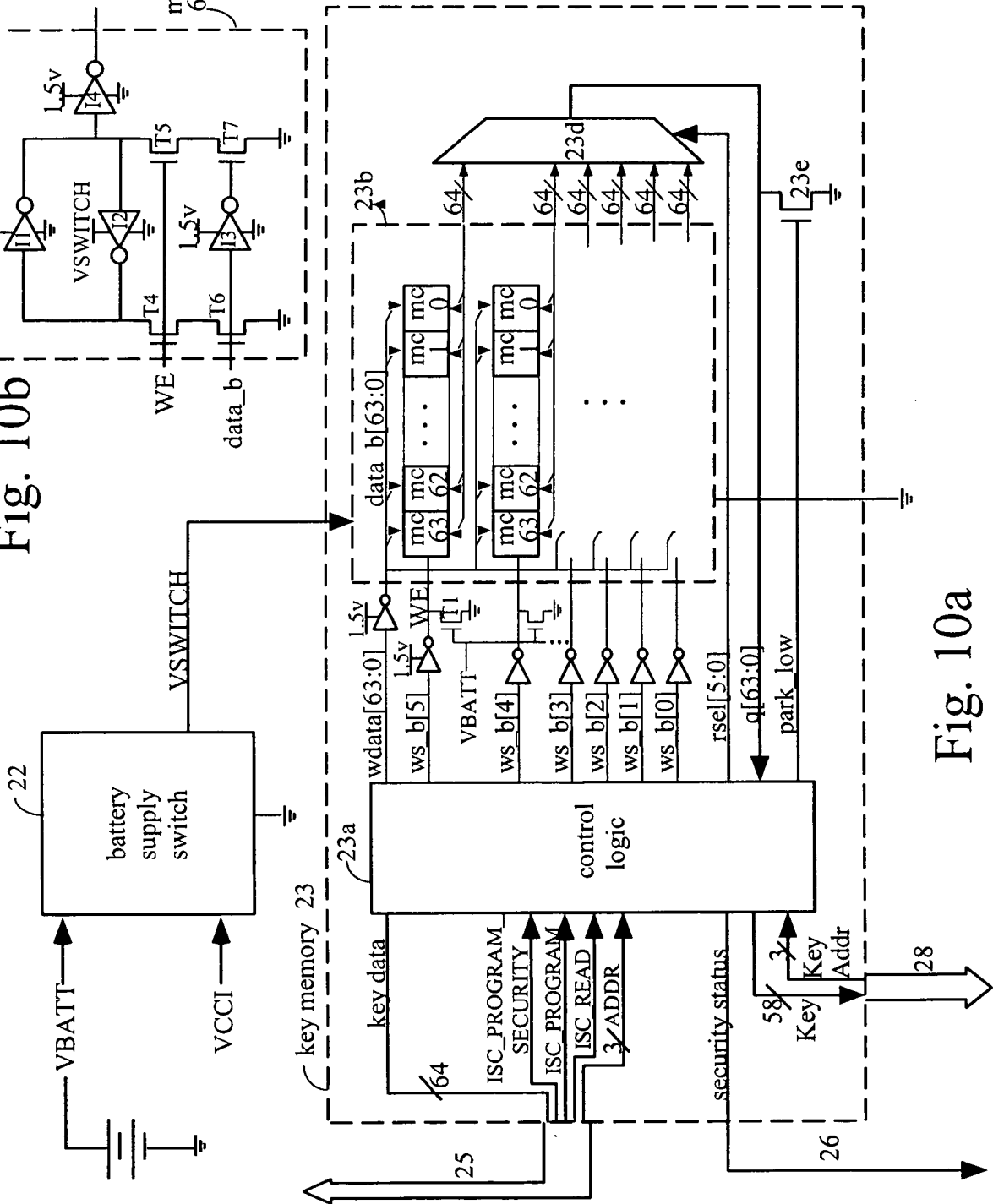


Fig. 10a

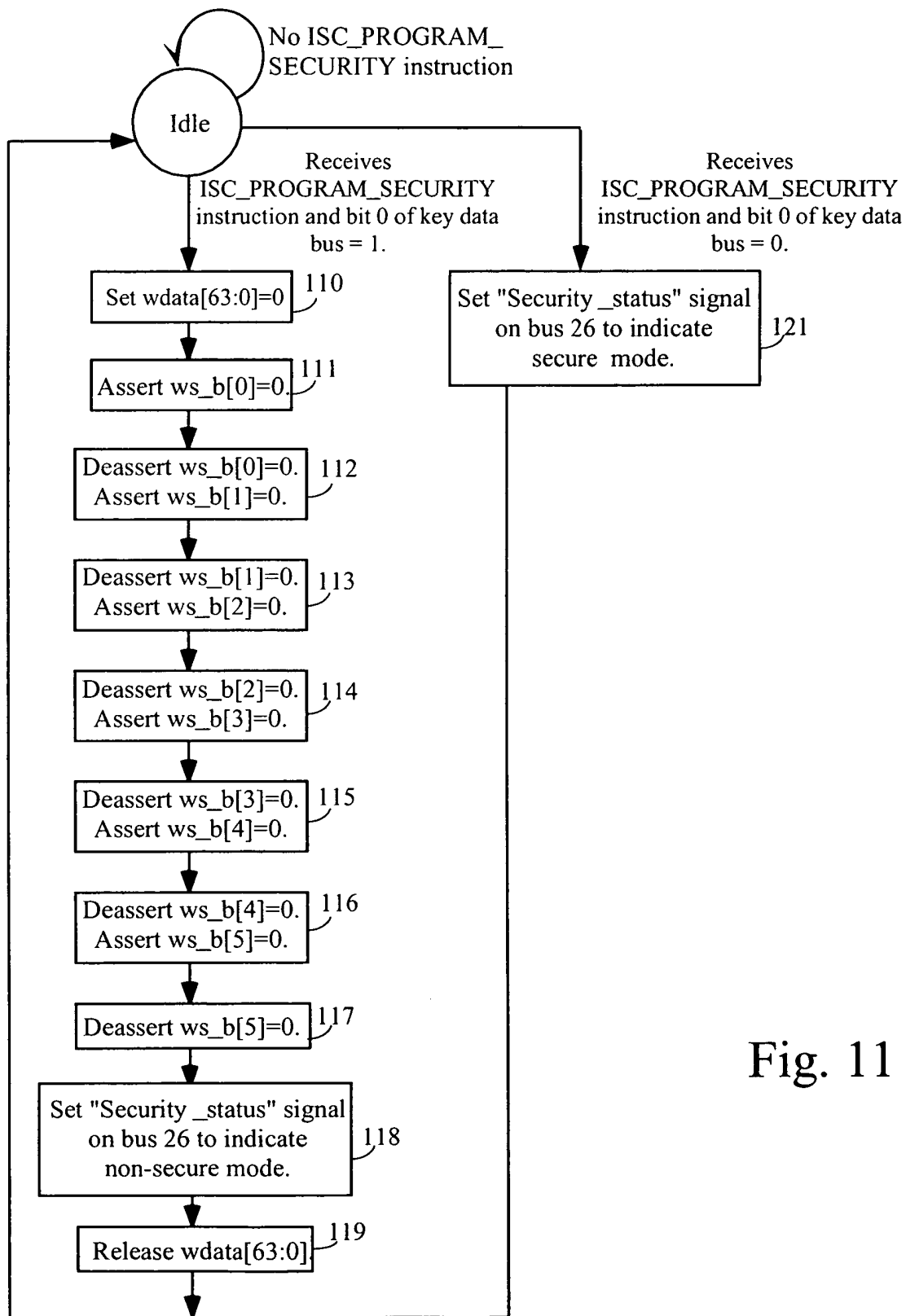
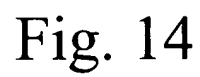


Fig. 11



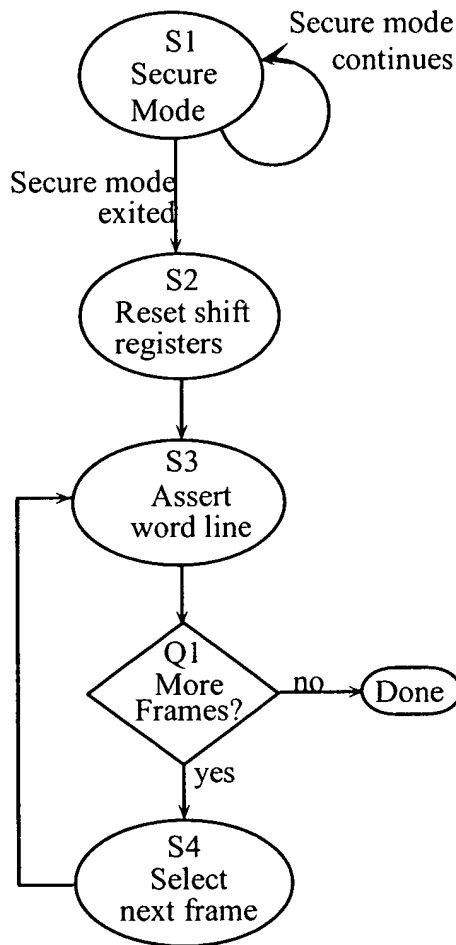


Fig. 15

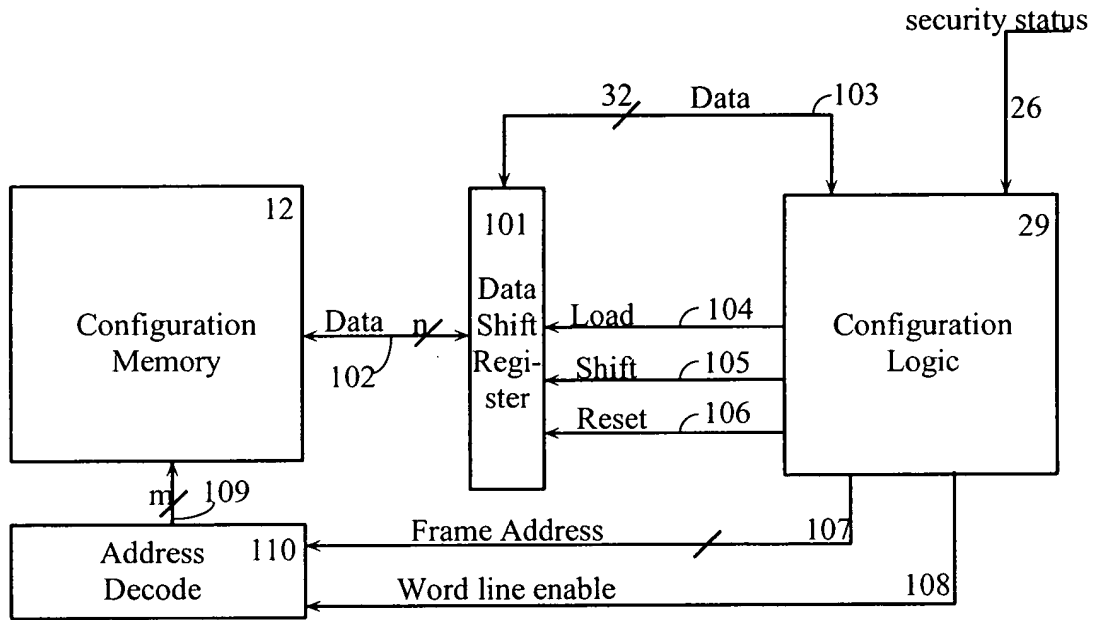


Fig. 16